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FARMERS' BULLETIN 537

HOW TO GROW AN ACRE OF CORN

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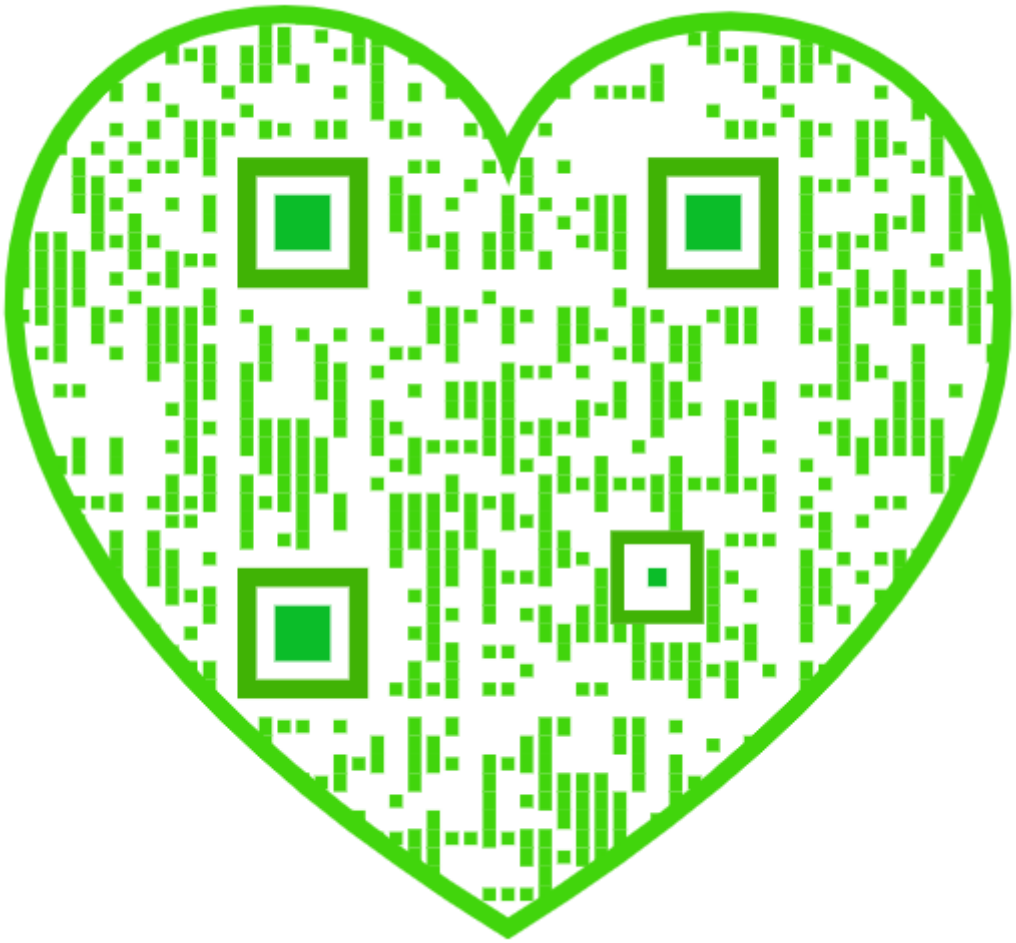

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HOW TO GROW AN ACRE OF CORN.[1]

INTRODUCTION.

For no 10-year period has the corn yield of the United States exceeded 28 bushels per acre. No State has averaged for any year over 54 bushels per acre, yet in practically every section of the United States yields of more than 100 bushels have been produced. As States and as a Nation twice as much land is being used and much more labor is being performed in producing the corn crop than is necessary.

The possibility of doubling our acre yield of corn is so certain and its accomplishment of such tremendous importance that school, State, national, and independent organizations of corn clubs and associations of corn breeders and corn growers are helping in a way that will lead to success. Such clubs and associations are especially fitted for this most important work, for they combine the yearly experience of many and can continue their records indefinitely, each year profiting by past experiences.

In the following pages some fundamental requirements for large and profitable corn yields on 1 acre are given for the general guidance of boys either as individuals or as members of clubs and associations. Exceptional and local conditions are not here discussed. General and fundamental requirements of the crop as gained by experiences in many parts of the United States are given as a foundation upon which to utilize and apply local experience and instructions from those possessing such experience.

WHAT KIND OF CORN TO GROW.

Grow the kind that is likely to prove most profitable.

If near a good market for roasting ears or a canning factory sweet corn may prove most profitable, or under certain conditions pop corn might pay best. (Figs. 1 and 2.)

For some sections varieties of the dent-corn group are too soft to resist decay and varieties of the flint-corn group are more profitable. (Figs. 3 and 4.)

[1] Copies of any of the following Farmers' Bulletins upon the subject of corn will be sent free of charge on application to a Senator or Representative in Congress or to the Division of Publications, Department of Agriculture: 414, Corn cultivation: 565, Corn meal as a food and ways of using it; 773, Corn growing under droughty conditions; 915, How to reduce weevil waste in southern corn; 992, The use of machinery in cutting corn; 1149, Growing corn in the Southeastern States; 1175, Better seed corn; 1176, Control of the root, stalk, and ear rot diseases of corn. Yearbook Separate 872, The corn crop, will also be sent free on application.

In practically every corn-growing community there is a strong demand every spring for first-class seed corn.

The acre can be made highly profitable if devoted to the growing of seed corn of the most productive variety for the neighborhood.

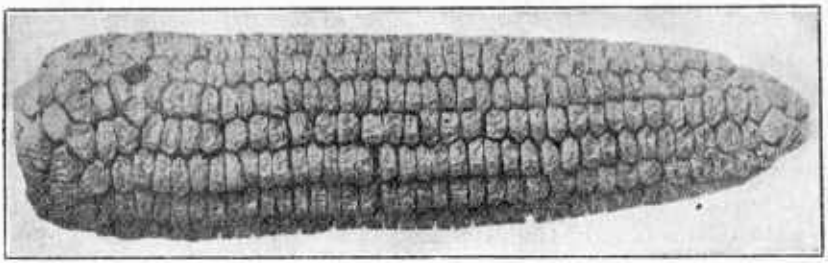

FIG. 1.—A good seed ear of the sweet-corn group and of the variety known as Early Evergreen.

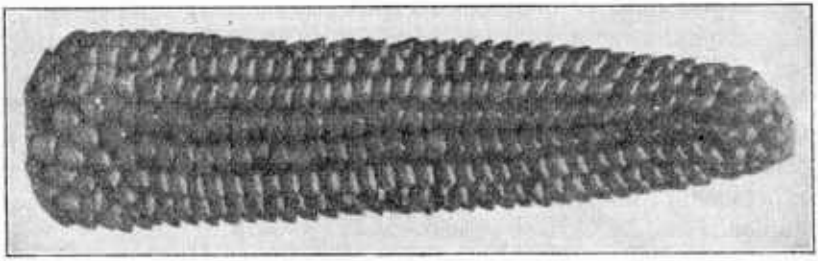

FIG. 2.—A good seed ear of the pop-corn group and of the variety known as White Rice.

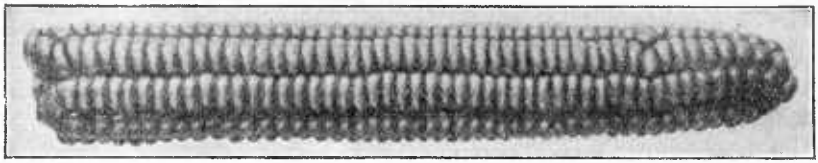

FIG. 3.—A good seed ear of the flint-corn group and of the variety known as Ninety-Day Yellow Flint. Flint varieties do not absorb moisture and spoil as readily as dent varieties.

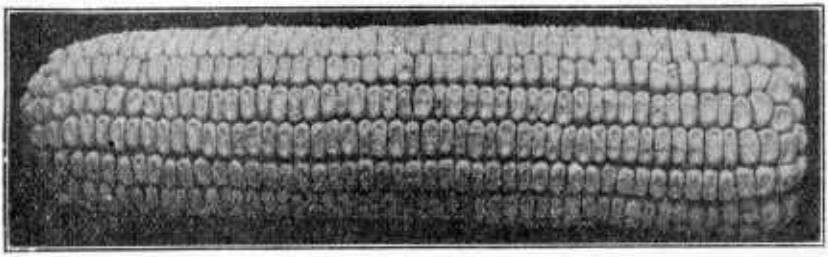

FIG. 4.—A good seed ear of the dent-corn group and of the variety known as Woodburn White Dent. For a field view of this corn see figure 6.

If the crop is sold as commercial corn, 50 or 75 cents a bushel will be received, but by selecting at the proper time all that is suitable

for seed and giving it good care till planting time $2 or $3 a bushel can be obtained.

The variety that has generally produced the most good, sound grain in the neighborhood is the variety to plant, and it can be greatly improved by careful seed selection. It is also the corn that will be most in demand for seed throughout the neighborhood.

If corn throughout the county generally fails to ripen properly, take up work with an earlier maturing variety. (Fig. 5.)

If the corn generally grows too tall (fig. 6), take up work with seed from stalks that do not grow too tall.

FIG. 5.—A field of Gehu Yellow Flint corn near Bismarck, N. Dak. A successful crop necessitates that the variety be well adapted to the climatic and soil conditions under which it is grown.

If the most productive varieties of the neighborhood are prolific varieties (fig. 7), take up work with the one that seems to have been giving most general satisfaction.

If the most productive varieties of the neighborhood are 1-eared varieties, take up work with the one that seems to have been giving most general satisfaction.

WHEN TO TAKE UP CORN-IMPROVEMENT WORK.

Just as soon as you reach a determination to persevere until successful you should begin corn-improvement work.

Each community needs an experienced and conscientious corn breeder.

By starting while young and keeping at it, boys have splendid opportunities to produce better varieties than have ever been produced.

The Office of Corn Investigations of the United States Department of Agriculture wants to help a boy in each county who has produced the best corn crop for a number of years to become an efficient, conscientious seed-corn grower for his county.

Some feature or other of the work needs attention at all seasons of the year.

These features must be attended to at the proper time, as success is not likely to be won by spasmodic attempts. It is usually won by

FIG. 6.—A field of Woodburn White Dent corn in southern Ohio, photographed in 1904, since which time by careful selection the height of stalks and ears has been advantageously reduced and the productivity increased. Last year 881 acres averaged 83 bushels of dry shelled corn to the acre.

perseverance, which causes each operation to be accomplished at the proper time and in the best manner.

At planting time hopes of success are usually brightest, but the exercise of ability at seed-selecting time, at plowing time, and at many other times is necessary.

SELECTING SEED FOR THE ACRE.

Select seed ears in the field from the very best stalks and as soon as the ears are ripe. (See "Drying and caring for seed corn," p. 17.)

Select at least 100 ears; 200 are much better, and it is still better if some ears of the same variety be selected from a neighboring field or farm.

The acre is to be a seed patch, and the improvement of a variety of corn should not begin with a small number of ears, as close breeding is likely to gradually reduce productiveness.

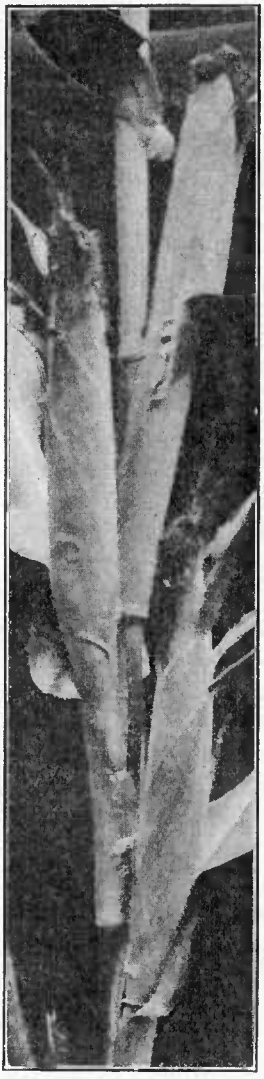

FIG. 7.—A stalk of corn of a prolific variety. Varieties that bear two or more ears to the stalk are known as prolific varieties. In general the size of ear decreases as the number of ears to the stalk increases.

PREPARING THE SEED FOR PLANTING.

Such work as sorting, testing germinating qualities, shelling, etc., should be done in the early spring before field work demands attention.

The best time to grade seed corn is before shelling.

Only heavy, solid ears should be used for seed, and the ears chosen should contain kernels of a good uniform length, width, and thickness.

Ears containing kernels of various sizes and shapes should be discarded.

The ears can be numbered by sticking a pin through a piece of paper into the end of the cob, and 10 kernels taken from each ear can then be tested to determine whether they will grow. If weak or dead kernels are found, the ears from which they were taken should be discarded. See Farmers' Bulletin 1175.

Before shelling, all small and poorly developed kernels should be removed from the ears, for they will produce weak and barren stalks.

If the seed is to be planted by means of a corn planter, the large, irregular kernels from the butts of the ears should also be discarded before the ears are shelled.

The proper way to shell seed corn is by hand, shelling one ear at a time into a coarse-meshed sieve. This enables the kernels and cob from each ear to be closely inspected and all kernels to be easily rejected if any defect is found. The sieve facilitates the separation of the chaff and other small particles from the seed.

SELECTING AN ACRE FOR CORN.

It is better to have the seed acre adjacent to or a part of a larger field of the same variety of corn.

An isolated acre of corn is very likely to meet with injury from live stock, squirrels, crows, chinch bugs, or grasshoppers at some time during the season.

The soil should be fertile and loose to a great depth. A good corn crop can not be produced on hard, depleted soil.

A highly profitable corn crop depends very largely upon the selection of a fertile, well-drained location.

The acre should be uniform, so that all parts will be in proper condition for cultivation at the same time.

The nature of the season can not be foretold; therefore it is impossible to predict whether high land or low land will produce better, but as corn makes a tall, thrifty growth, requiring much moisture, low land usually being better supplied with moisture and fertility is likely, if well drained, to produce better than high land.

Choose land that usually produces heavy crops and, if possible, land that has recently produced vigorous crops of clover, cowpeas, alfalfa, vetch, or some other legume. A heavy growth of large, vigorous horseweeds, cocklebur, or other rank-growing weeds indicates a good corn soil.

Alfalfa, clover, and similar plants send their roots to great depths and are the best crops to turn under for the purpose of growing a very large corn crop. Their culture is the best and most economical way of subsoiling land. The deep-growing roots loosen the subsoil and keep it porous long after the crop is turned under. Without sufficient rainfall unusually poor corn crops are obtained on alfalfa sod, the soil moisture having been exhausted to a great depth by the roots of the alfalfa.

Outer rows of corn are usually broken down in cultivating and are usually injured more by chinch bugs or grasshoppers from adjacent fields or by hot winds. Therefore, more than an acre should be planted, so that at least four guard rows of corn may surround the test acre.

FERTILIZING THE ACRE.

A liberal supply of soil moisture is indispensable to a good corn yield.

Well-decomposed manure is the surest fertilizer for producing a large corn crop.

Failure is quite sure to follow an attempt to grow a large corn crop on hard or depleted soil unless its hard or depleted condition is overcome by a liberal application of manure.

Barnyard manure that is well decomposed and moist can safely be applied abundantly, 20 or 40 tons to the acre.

Where rainfall is deficient, manure containing stalks or undecomposed straw may reduce the corn yield by admitting too much air into the soil and facilitating the escape of soil moisture.

Manure and decomposed vegetable matter greatly increase the water-absorbing and water-holding capacity of a soil.

Where heavy applications are made, the manure should be well mixed with the soil, and preferably this should be done several months previous to planting the corn.

Manure should be applied before its soluble parts have leached away by exposure to rain.

It is unwise to attempt to grow a profitable corn crop on hard, depleted soil by a heavy application of commercial fertilizers without improving the physical condition of the soil.

If local tests have demonstrated that a soil responds with increased yields to the application of a particular element, that element should be liberally applied.

Many soils contain an abundance of potassium, but some soils, notably some peaty soils, are so deficient in this element that they yield very unprofitable corn crops without its application and very profitable corn crops when potassium is supplied.

Some heavy clay soils and sandy soils are often improved by an application of lime, and in many localities ground phosphate rock can be profitably used in growing corn. The lime is applied to best advantage for the clover or alfalfa crop. The ground phosphate rock is best applied by composting it with manure.

Large corn crops have been grown by heavy applications of commercial fertilizers containing nitrogen, phosphorus, and potassium, but on many soils the application of all these elements is unnecessary, and the application of those not needed increases the cost of production and does not increase the yield. Nitrogen, the most expensive element of commercial fertilizers, is taken from the air and stored in the soil by the growing of legumes.

Commercial fertilizers should be applied broadcast. The corn roots ramify throughout the soil and utilize fertilizers so applied to better advantage than when they are applied directly in the row or hill.

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If 300 pounds or more per acre of commercial fertilizers be placed in direct contact with the kernels, they are liable to be killed or so injured that the yield may be reduced.

PREPARATION OF THE SEED BED.

Land is plowed in order to loosen it and enable water to enter in greater quantity, be absorbed to greater depth, and remain longer in the soil.

A deep seed bed well supplied with soil moisture and well drained makes a big corn yield possible whether the summer proves "too dry" or "too wet."

If not well plowed, some lands are so impervious that during several weeks of rainy weather they remain dry below a depth of 5 or 10 inches.

In many localities it is best to plow in the fall or several months before planting, in order to enable the soil to store a sufficient amount of water to produce a corn crop. In some localities it is necessary to grow rye or some other crop on fall-plowed land to prevent erosion.

Heavy cover crops should be turned under in the fall, winter, or very early spring in order to give time for decay before corn is planted on the land.

Land should never be plowed when too wet to pulverize finely. In the fall, plowing may be done even when the ground is too dry, as winter rains and freezing will pulverize the clods.

If plowing is done in the spring shortly before planting time, it is necessary that the soil be in proper condition to pulverize readily. (Fig. 8.)

Spring-plowed land should be harrowed the same day it is plowed.

Disking land in the spring before plowing is a great advantage. It retains moisture and keeps the land longer in a good plowing condition. It also pulverizes the surface portion of the furrow slice before it is turned under out of reach of the harrow.

When the soil is loose to a sufficient depth, corn roots penetrate in abundance to a depth of 3 or 4 feet.

The growing of clover and deep-rooted plants is profitably practiced with most soils, and subsoiling is profitably practiced with some soils to increase their water-absorbing capacity and to enable the corn roots to use the soil to greater depths.

By growing deep-rooted crops or by some other means, the soil should be loosened to a great depth. As the crop on an acre is limited to 43,560 square feet of surface, it should be enabled to use the acre

to a great depth. In compact soils plowed but 6 inches deep and cultivated 3 inches deep there remain but 3 inches of loose, plowed soil in which the corn roots can feed unmolested by summer cultivation, but if plowed 10 inches deep and similarly cultivated there

FIG. 8.—A field having soil in good condition for plowing, but the plowing shown is not deep enough for corn.

remains more than twice as much loose, unmolested soil for the corn roots.

There are good disk plows, there are good walking moldboard plows, and there are good sulky moldboard plows.

Poor plowing can be done with a good plow.

Use large plows and plenty of power.

On many heavy clay soils the yield of corn per acre depends largely upon the thoroughness of the plowing.

Loosen all the land and leave no large air spaces. Do not "cut and cover."

A pasture field was plowed in alternate strips by two men, one a careful plowman and the other a poor plowman. The poorly plowed strips showed poorer corn all through the summer and produced 20 bushels less corn to the acre than the well-plowed strips. The careless plowman allowed the plow to "cut and cover" in places, leaving hard spots where the plow did not loosen the land and large air spaces where the overturned sod buckled and did not come in contact with the subsoil. Hills of corn growing on hard spots or over large air spaces usually produce poorly.

Where a heavy growth of clover or weeds or a heavy application of manure was plowed under in the fall, the land should be given, just previous to planting, a cultivation as deep as it was plowed. This deep cultivation mixes the humus throughout the soil and is of more value than any other cultivation the corn crop can be given. It is economical, because wider cultivators and more horses can be employed than is possible after the corn is planted.

PLANTING.

There are many questions concerning implements, methods, distance between rows, thickness of planting, etc., that should be definitely settled before planting time. These questions are governed to a large degree by local conditions.

A distance of 3.3 feet between corn rows is suggested for the majority of cases. Some 2-row planters are more easily adjusted to 3 feet 4 inches, which is very satisfactory.

More space is required for tall-growing than for smaller varieties.

It is never advisable to use seed that germinates poorly, and with first-class seed it is well to drop twice as many kernels as the number of stalks desired.

In planting, this familiar saying should be followed: "One for the blackbird, one for the crow, one for the cutworm, and three for to grow."

On poor land and also in very dry sections larger grain yields can be secured with a thin stand of stalks. Under such conditions, however, some other crop can usually be grown more profitably than corn, for corn requires much moisture and fertility.

In sections where the annual rainfall is less than 25 inches a thin stand of stalks is preferable unless moisture is supplied from some other source than rain.

Where soil moisture is likely to be deficient during the silking period, a stalk for each 20 inches of row (the rows being 3.3 feet apart) is sufficient and will make possible a yield of 113 bushels per acre if the stalks average a pound of grain each.

With an abundance of fertility and rainfall 12,000 or more stalks to the acre are necessary for obtaining record yields.

With an abundance of fertility and soil moisture throughout the silking period, a stalk for each 12 inches of row is advisable and will make possible a yield of 188 bushels per acre, the stalks averaging 1 pound of grain each.

Drilled corn, if kept equally well cultivated and free from weeds, will usually produce better than hill-planted corn. The stalks develop better and yield better when separated from each other by several inches than when crowded closely together in hills.

If the acre is planted in hills by hand the kernels should be separated in each hill by several inches. This tends to increase the yield and makes it easier to thin without loosening or injuring the remaining stalks.

In the proper kind of seed bed the kernels should be covered 1 inch deep. They should come in contact with moist soil. They can not germinate in dry soil and are liable to injury before rain occurs.

A successful planting, a satisfactory stand of plants, and a profitable yield are largely assured by getting the seed bed in a perfect condition for very early planting and then waiting to plant until the soil is warm and moist.

The best possible yield necessitates the proper number of stalks evenly distributed. But this alone is not sufficient. Quality of stalks is as necessary as quantity of stalks. The proper number of stalks can be obtained by heavy planting of poor seed, but stalks from such seed will not produce well. The quality of a stalk is determined by the seed and the conditions for good production with which it is provided.

The secret of a prize-winning corn crop consists in having the proper stand of stalks, each one of which yields well. This can be best accomplished by the heavy planting of good seed and thinning out the poorest plants.

Replanting seldom increases the grain yield.

Cultivating up the first planting and planting the entire acre the second time is better than replanting a poor stand.

COMBATING CUTWORMS.

In many sections it is seldom possible to plant corn at the proper season without having a large percentage of the young plants destroyed by cutworms.

Fall plowing and late spring planting are methods successfully used to combat cutworms.

A persevering boy can prevent his acre from being seriously injured by cutworms by placing upon each corn hill, immediately after planting, and later on at intervals, lumps of poisoned bait, made by mixing about 50 pounds of wheat bran with a pound of Paris green [1] and enough of the cheapest grade of molasses to make a stiff dough. Many of the worms eat this poisoned bait and die before the corn comes up, but this method of treatment has also proved quite effective even after the plants are well grown. Corn meal may be substituted for the wheat bran in the mixture when the latter is not available.

THINNING.

For highly profitable crops, heavy planting and thinning are advisable, though not always practicable in extensive planting. It is one means a boy has of producing a record-breaking acre of corn.

Thinning should be performed as soon as the stalks are too hard for cutworms to cut off and before they are a foot tall.

A flattened broomstick or a similar stick to which is fastened a flattened piece of iron, like a 2-inch chisel, is of great assistance in thinning, as it is necessary to remove the stalks below the surface of the ground in order to prevent further growth.

Slightly more stalks than a perfect stand should be retained, so that injured, diseased, or feeble stalks can be removed later without reducing the stand below that required for the best grain yield. Such stalks should be considered as weeds and removed as soon as their inferiority is evident.

CULTIVATION.

To produce a maximum yield, corn roots require warmth, a certain amount of air, and considerable moisture.

Corn is cultivated in order to supply these requirements.

Too much water and too little air in the soil as surely prevent healthy growth as too much air and too little water.

Air is deficient in saturated soils, and on such soils corn plants become yellow and unproductive.

Good cultivation at the proper time admits air, lessens the ascent of water from the subsoil, causes the soil to become warmer, and stimulates a better growth.

Weeds should be killed as soon as they begin to grow, but the primary reason for cultivating is to maintain the proper proportion of air and moisture in the soil.

Some successful corn growers, some who have averaged 100 bushels of dry shelled corn to the acre on hundreds of acres, believe the best

[1] Paris green is a poison and should not be placed where children or domestic animals can get it.

single cultivation they can give their corn is a cultivation 8 or 10 inches deep given just before planting.

If prolonged and heavy rains pack the soil to a great depth, a deep cultivation can sometimes be given to advantage while the corn is less than a foot tall.

Soon after the plants become a foot tall their roots reach across the spaces between rows and cultivation should not be deeper than 2 inches. A deeper cultivation is likely to reduce the yield.

A shallow cultivation should be given as soon after every heavy rain as the land becomes in good workable condition. The cultivation should be given with such implements and in such a manner as to leave the soil in a fine, loose, smooth condition. (Fig. 9.)

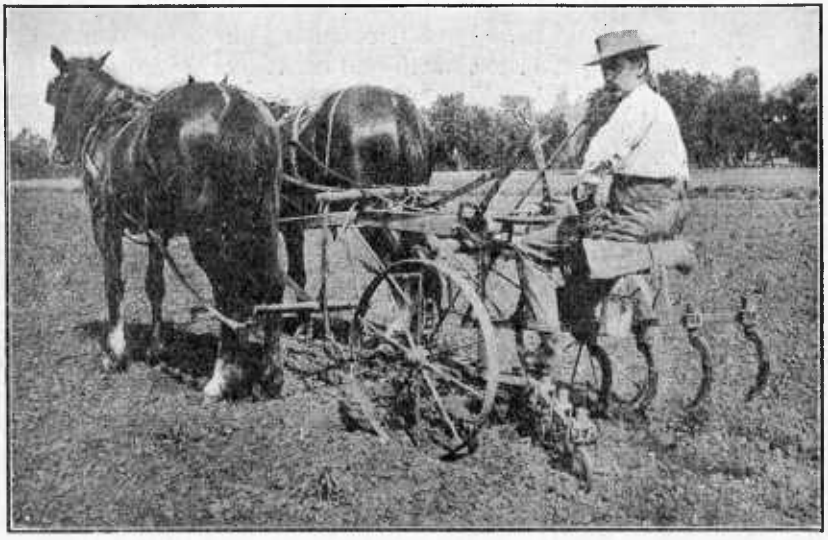

FIG. 9.—A corn cultivator. The kind of cultivator and its proper equipment with sweeps or shovels is governed by the nature of the soil and the object to be accomplished.

It is never safe to allow the soil surface to become hard and too dry to cultivate to the best advantage. Continued dry weather with the soil in this condition is certain to reduce the yield materially, and cultivating such soil results in still greater injury.

Until the silking period the soil surface should be kept in a fine, loose condition, so that in walking on it when dry it is felt to give under the feet and distinct footprints are made.

Shallow cultivations given even as late as silking time are often as valuable as earlier cultivations.

Weeds growing in the corn at silking time reduce yields very materially, as has been conclusively proved by experiments conducted by the Office of Corn Investigations.

Under some conditions six or eight cultivations are advisable, while under other conditions three cultivations may be sufficient to keep the soil in proper condition and would therefore prove more profitable than a greater number.

FIG. 10.—Good corn plants from which to select seed. Ears early pendent do not take water and spoil as badly as erect ears.

SELECTING SEED FROM THE ACRE.

It is reasonable to assume that a variety that makes the best yields in a county is adapted to the locality. This is especially true if the same variety produces best for several years.

Well-preserved seed of such varieties is greatly needed and is in demand in practically all corn-growing counties.

It is also fair to assume that seed from a high-yielding acre, if well cared for during the winter, will under similar conditions give equally good yields on many other acres in the neighborhood, and that with better care even greater yields may be obtained.

All good seed ears should be gathered as soon as ripe and before any freezing has occurred.

Go through the acre with a picking bag on the shoulder and gather the ears from the best stalks. By walking between two corn rows the good high-yielding plants in the two rows can be readily found.

The kind of plant from which seed should be taken is one that produces much better without any apparent reason than plants surrounding it. Plants with an unusual amount of space or an unusually fertile location may produce better than surrounding plants without possessing any greater inherent producing power and therefore would be of no special value as plants from which to select seed.

In the Central and Southern States, where there is a tendency for stalks to grow too tall, short thick stalks producing pendent ears at or below their middle point are good stalks. (Fig. 10.) From local varieties low-growing strains can be bred by selecting seed each year from high-yielding but low-growing stalks.

Where exceedingly early-maturing varieties are necessary (see fig. 5), seed should be taken from stalks that produced their ears high enough to keep the ears from touching the ground when they become pendent.

Suckers are undesirable and can be gradually eliminated by taking seed only from stalks that produce no suckers.

In prolific varieties, i. e., varieties bearing two or more ears per stalk, the various ears of a stalk are of equal value for seed.

When an unusually high-yielding and well-proportioned plant is found (fig. 11), the ear or ears should be cut with some of the husk attached, so that such ears can later be distinguished and used in planting the seed acre the next year.

The seed acre of one year must not supply the entire quantity of seed for the seed acre the next year. A continuation of such a practice would tend to reduce the productivity of the variety because of close breeding.

To avoid close breeding, some ears from unusually good plants from other fields of the same variety should be planted each year in the seed acre.

FIG. 11.—A productive and well-proportioned corn plant of a 1-eared variety.

DRYING AND CARING FOR SEED CORN.

Immediately after gathering, the seed ears should be placed to dry in a position where they will not touch each other and where there is a good circulation of air.

Binder twine (fig. 12) or racks made from electrically welded wire fencing (see Farmers Bulletin 415) are satisfactory means of suspending seed ears to dry.

In many Southern States it is not desirable to leave the ears on the racks all winter, as they are likely to be injured by the grain moth.

When the seed becomes as dry as old corn, it can be taken from the racks, weighed, and stored where neither moisture, moths, nor mice can injure it.

Upon care in this particular depends in a large measure the success of the next year's crop. Poor care has reduced and will reduce the yielding power of seed by 18 bushels per acre without perceptibly injuring its germination.

An upstairs room or an attic usually offers good protection from moisture.

A pound of naphthalene or moth balls stored with each bushel of seed ears will protect it from grain moths and do it no injury.

Boxes or crates completely covered with fly screening or woven wire will give protection from mice and rats.

Perhaps no other regrets are so often heard at boys' corn-club meetings as those regarding the destruction of their seed corn by mice and rats.

FIG. 12.—Boys using binder twine to suspend ears of corn to dry. By this means two boys can quickly suspend the seed ears in a well-ventilated place.

If seed corn be placed where it is merely supposed that mice or rats can not injure it, the owner is likely to meet disappointment.

There are so many unavoidable things that may cause poor yields that it becomes necessary to insure success in every way possible. The only way to insure the seed supply is to place it where it can not be injured by anything.

DETERMINING THE YIELD.

A record of a big yield to be of value must be honestly and accurately determined according to standard methods of measurement.

It is easy to weigh the corn when it is full of water and to measure a smaller area than that which produced the crop, but to do so makes the weighing and measuring a mockery and the record of no value.

Green, sappy ears may weigh twice as much as when dry.

A plat consisting of four corn rows 4,400 feet long and 3.3 feet apart occupies 1 acre if measured from one outside row to the other, but by correct measurement it occupies 1⅓ acres of land.

The number of rows must be multiplied by the average width between rows and this product multiplied by the full length of the plat to obtain the true area from which the corn received benefit.

To make the records of value and have them comparable from year to year it is necessary to consider the moisture in the corn when harvested and weighed. To accomplish this, 100 pounds of ears should be weighed when harvested, put in an airy place till as dry as old corn, and then weighed again and shelled. The weight of shelled corn is the percentage of dry shelled corn, and multiplying the total pounds harvested by this percentage gives the yield in pounds of dry shelled corn.

If the acre was harvested directly after the seed was selected, the harvest weights of all can be reduced to pounds of dry shelled grain by the one calculation. But if the seed was selected while in a sappier condition, a similar process is necessary to determine the pounds of dry shelled grain taken from the acre for seed.

CONCLUSION.

The praiseworthy and highly beneficial cooperative corn-improvement work in progress throughout the United States is making it more urgent that records be kept and that they be kept in definite and comparable terms.

Dry shelled corn per acre is the most definite and generally accepted way of recording corn yields. Old corn, or corn containing approximately 12 per cent of moisture, is considered dry corn. Fifty-six pounds of shelled corn constitute a bushel.

True records will point the way to further improvement. Knowledge of the requirements of the corn plant and of the best practicable means of supplying such requirements is of great and general value to the people of the United States. Our weakest defense is our vast acreage of poor corn, the culture of which is impoverishing farms and farmers.

The possibility of doubling the acre yield of corn has been demonstrated in many and remote sections of the United States. A persistent loyal adherence of all corn-improvement workers to the motto "Fewer acres and more corn to the acre" is certain to gradually raise the average yield of county, State, and Nation.

ORGANIZATION OF THE UNITED STATES DEPARTMENT OF AGRICULTURE.

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